

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 10, Seattle, Washington

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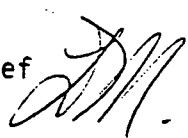
DATE: AUG 08 1983

SUBJECT: Additions & Corrections to Background Information Document for Proposed Standards for Inorganic Arsenic Emissions from High Arsenic Primary Copper Smelters

FROM: Wayne E. Grotheer
Environmental Engineer

TO: Rulemaking Docket

Through: Michael M. Johnston, Chief
Air Operations Section



My review of the subject Background Information Document (EPA-450/3-83-009a) concerning the proposed Arsenic NESHAP for ASARCO, Tacoma indicates that the following areas of that document should be amended to reflect most recent information:

1) Discussion of other Regulatory Considerations (Section 4.2.1):

(A) Sulfur Dioxide (4.2.1.1.1):

The PSAPCA Board of Directors granted a variance from Section 9.07(b) and (c) of Regulation I on November 12, 1981, subject to the terms of Resolution 501 (attached) of that date. The detailed compliance schedule of that Resolution (Section 2) requires ASARCO to investigate both flue gas desulfurization and alternative smelting technologies, leading toward compliance with Sections 9.07(b) and (c) by 1987. If flue gas desulfurization were applied to additional process streams at the smelter, further particulate and arsenic removal would be accomplished as part of this control. Alternatively, application of different smelting technologies would likely significantly alter arsenic emission generation at the smelter. Therefore, the statement of Page 4-6 that "... the application of additional controls for SO₂ is expected to have a negligible impact on current arsenic emissions from process sources." should be changed.

(B) Total suspended particulates (4.2.1.1.2):

The current compliance status of ASARCO with the process weight-based particulate emission limit (PSAPCA Regulation I, Section 9.09(c)) is unknown. No complete EPA Method 5 particulate testing of total plant emissions has been conducted at the smelter and limited testing which has been conducted has not evaluated the smelter's compliance status with this limit. Calculations by PSAPCA based on testing results reported by ASARCO in January 1983 suggest that the process weight limit may at times be exceeded (see attached February 8, 1983 letter from PSAPCA to ASARCO). EPA Region 10 and PSAPCA are currently awaiting ASARCO's test proposal for evaluation of compliance with the process weight limit. Therefore, the statement on Page 4-7 the "The Tacoma smelter is in compliance with Sections 9.09(c) and 9.09(d)." should be modified.

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(C) CERCLA (4.2.1.5):

The eventual actions at ASARCO Tacoma under Superfund, although currently undetermined, may affect arsenic air emissions from the smelter. The statement on Page 4-9 that "It is unlikely, however, that arsenic air emissions from the smelter will be affected by the Superfund program" should be modified or deleted to reflect this uncertainty.

2) Annualized Costs for Secondary Hood Installation (6.1.3, 6.1.4, Tables 6-3 and 6-4):

The estimated annualized cost for implementation of secondary convertor hoods is \$1.49 million. The largest single component of this cost \$859,800, is based on increased electrical consumption of 1.5×10^7 kWh/year (48 FR 33123, July 20, 1983) at a unit power cost of \$0.059/kWh. The current unit power cost for ASARCO-Tacoma is \$0.0078/kWh (plus a demand charge which varies from \$1.465/kWh June-November to \$2.76/kWh December-May). Using the actual unit power cost of \$0.0078/kWh, annual utility costs are \$117,000. The annualized costs in the Background Information Document should be modified accordingly.

3) Stack Height Used for Dispersion Modeling and Receptor Elevations (E.3.2 and Table E-2):

Table E-2 lists a stack height of 61 meters as input to the dispersion model. Actual stack height used in the modeling was 172 meters (verified per telephone conversation between Michael Johnston and Joe Tikvart on August 5, 1983). Table E-2 should be changed accordingly. Section E.3.2. indicates that receptor elevations are limited to approximately 70 to 216 meters (200 to 710 feet) main stack level (MSL). This should be changed to read mean sea level instead of main stack level.

cc (w/attach): ASARCO Arsenic NESHAP Task Force

Attachments

February 8, 1983

Mr. L.W. Lindquist
ASARCO, Inc.
PO Box 1677
Tacoma, WA 98401

RECEIVED
FEB 14 1983

AIR PROGRAMS BRANCH

Dear Mr. Lindquist:

Characterization of Visible Plumes from a Copper Smelter

Thank you for the copy of the study performed by J.M. Wilder and T. Tucker of the University of Washington and R. Welch of your staff submitted to us on January 14, 1983. Using the information contained in Table I of the study, we have prepared the enclosed table. The process weight was calculated assuming the information in the report was correct (e.g. for test A only the reverb was in operation). The hourly process weight in the table was obtained by dividing the maximum daily capacity of the process by 24 (e.g. for the reverb, 1200 T/day/24hrs/day = 50 tons/hr). The particle emissions were calculated from the reported grain loadings assuming a volumetric flow rate of 600,000 dscf/min.

The results of these calculations show that during two of the tests (A and D) the process weight standard of 9.09(c) was exceeded. While there are many uncertainties in this analysis due to lack of information, it indicates that there may be times when the main stack emissions exceed the particle mass rate emission standard.

We would like to meet with you to discuss methods by which you can demonstrate compliance with the process weight standards of Section 9.09(c) of Agency Regulation. Please inform me when it would be convenient to meet.

Very truly yours,

A.R. Damkoehler
Air Pollution Control Officer

kc

bcc: Chief - Engineering
Chief - Enforcement
Project Administrator, Carson

<u>Test</u>	<u>Conditions</u>	<u>Process Wt (lb/hr)</u>	<u>Allowable TSP (lb/hr)</u>	<u>Average Opacity</u>	<u>Particle (gr) Concentration (SDCF)</u>	<u>TSP Emission (lb/hr)</u>
A	Reverb Only	100,000	55.0	17%	0.017	87.4 ✓
B	Reverb & Converter	183,333	73.4	9.4%	0.0074	38.1
C	Reverb & Converter	183,333	73.4	13.6%	0.0121	62.2
D	Reverb, Converter & Secondary Hood	183,333	73.4	40%	0.0313	161.0 ✓

- TSP emissions were calculated assuming an average stack flow of 600,000 scdf per minute.
- Process weight was calculated assuming the processes identified were the only ones in operation and that those processes ran at maximum design rate.

RESOLUTION NO. 501

RESOLUTION OF THE BOARD OF DIRECTORS OF
PUGET SOUND AIR POLLUTION CONTROL AGENCY
(PSAPCA) DENYING UNTO ASARCO, INC. A
VARIANCE FROM SECTION 9.03(b) AND GRANTING
UNTO ASARCO, INC. A VARIANCE FROM SECTION
9.07(b) and (c) OF REGULATION I

WHEREAS, ASARCO, Inc. operates a custom smelter in Ruston, Pierce County, Washington, and in 1975 applied for a Variance from Sections 9.03(b), 9.07(b)(c) and 9.19(c) of Regulation I for varying periods of time, not to extend beyond December 31, 1980, and

WHEREAS, the Variance was granted by the Board of Directors of PSAPCA on February 19, 1976, and was appealed to the Pollution Control Hearings Board (PCHB) which reversed and remanded said matter for proceedings in accordance with SEPA, and

WHEREAS, the matter was appealed to the Superior Court which reversed the PCHB order, and on appeal to the State Supreme Court, said Court in October of 1979 reinstated the PCHB order and remanded the matter to PSAPCA for compliance with the EIS pursuant to SEPA, and an amended application was filed requesting a variance from 9.03(b) (opacity on the tall stack and on low level emission) and from 9.07(b)(c) (SO₂), and

WHEREAS, ASARCO applied for and received by Resolution No. 470, a variance from section 9.07(b)(c) of Regulation I for time to prepare the EIS, and said Variance was extended by Resolution No. 491, and

WHEREAS, the final EIS has been prepared and filed with the Board of Directors of the Agency, and the matter has been set for public hearing before the Board on the 22nd day of October, 1981, and

WHEREAS, the staff of the Agency has submitted a report and recommendation dated October 15, 1981, summarized as follows:

- a) 9.03(b) Tall Stack. Recommend denying the variance as ASARCO has not proposed a control program to achieve the opacity standard, and
- b) 9.03(b) Low Level. Recommend denying the variance and ordering ASARCO to meet the opacity standard by requiring the installation of secondary hoods on the converters, and

WHEREAS, the staff further recommended the granting of the variance for section 9.07(b)(c) until December 31, 1982, subject to the Board issuing an order to ASARCO to enforce certain conditions and

WHEREAS, the matter came on for hearing on the 22nd of October, 1981, and ASARCO presented evidence in support of its variance application for a variance until December 31, 1982, and proponents and opponents to the application submitted testimony and evidence concerning the granting or denying of the variance request and the Board continued the matter for decision until November 12, 1981, and ordered the transcript to remain open for additional written testimony until October 29, 1981, and during said period of time, additional testimony was received by the Board, and

WHEREAS, the Board, after consideration of the variance application, having considered the recommendation of the staff and having heard and considered the testimony from the citizens for and against said variance application and having reviewed the final EIS and its findings and conclusions, and having considered the recommendation

and relative interest of the applicant and the general public, and having heard commentary of all parties and being fully advised, does hereby attach a Summary of Testimony marked as Exhibit A and incorporated herein. The Board, in compliance with 7.01(a) specifically finds as follows:

1. In relation to 9.03(b), ASARCO has not maintained its burden of proof that the emissions that would occur during the time of the variance would not endanger public health or safety if the conditions of the staff recommendations are complied with by ASARCO, Inc.;
2. Sufficient evidence to sustain the burden of proving that compliance with section 9.03(b) was not submitted by ASARCO that during the variance period, compliance with section 9.03 would produce serious hardship without equal or greater benefit to the public;
3. In relation to 9.07(b) and 9.07(c), the emissions that would occur during the time of this variance would not endanger public health or safety if the conditions of the staff recommendations are complied with by ASARCO, Inc.; and
4. In relation to section 9.07(b) and 9.07(c), compliance with said sections by ASARCO during the variance period would produce serious hardship without equal or greater benefit to the public; and

WHEREAS, the Board, having considered the application and all the evidence, summarized in Exhibit A, and having made the above findings, does hereby further find that the denial of the variance from section 9.03(b) and the granting of the variance for section 9.07(b)(c) would be in the best interest of the inhabitants of King, Pierce, Snohomish and Kitsap Counties, State of Washington, now, therefore,

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE PUGET SOUND AIR POLLUTION CONTROL AGENCY:

Section 1: The application of ASARCO for a variance from section 9.03(b) for the emissions from the tall stack and the low level emissions for the Tacoma Smelter until December 31, 1982, be and the same is hereby denied; Provided, that the Board of Directors to insure compliance with the Arsenic Standard 9.19(c) and lead to compliance with the Opacity Standard 9.03(b) from low level emissions, shall issue an order to ASARCO requiring the installation of secondary hoods on ASARCO's converter, said order shall specifically state as follows:

1. ASARCO shall, by October 1, 1984, install and operate secondary hooding on all operating converters as proposed in Notice of Construction and Application for Approval No. 2253 filed with PSAPCA by ASARCO; and
2. ASARCO shall perform tests upon completion of the secondary hooding system on number 4 converter to evaluate the capabilities of the installation to comply with performance criteria as required by the U. S. Environmental Protection Agency; and
3. ASARCO shall modify the secondary hooding system on number 4 converter and the remaining converters as required by the U.S. EPA to achieve an acceptable level of arsenic control; and
4. ASARCO shall, by December 1, 1982, perform an Agency monitored mutually acceptable source test to simulate the arsenic emissions from slag handling. This condition may be waived if such a source test is performed by the U. S. Environmental Protection Agency by December 1, 1982.

5. Compliance with this order shall relieve ASARCO from penalties for violations of Section 9.03(b), Regulation I from the converter building; during the terms of this order; Provided, that this does not prevent the Agency from issuing Notices of Violation.

Section 2: The application of ASARCO, Inc. for a variance from section 9.07(b)(c) of Regulation I, be and the same is hereby granted until December 31, 1982, upon the following terms and conditions and stipulations:

1. That ASARCO shall immediately begin necessary testing and collection of data to identify the sulfur dioxide control system or systems which ASARCO may use to comply with 9.07(b) and 9.07(c). This shall include but not be limited to: testing of the roaster and reverberatory outlet gas streams to determine sulfur dioxide characteristics; market surveys for byproducts of possible sulfur dioxide control including gypsum, sulfuric acid, and liquid SO₂; identification of possible sludge waste disposal sites; evaluation of control techniques available to remove colloidal carbon from the roaster gas stream or from contaminated sulfuric acid; and pilot testing of control systems if such tests can be designed and completed by December 1, 1982; and
2. That ASARCO shall by December 31, 1982, submit to PSAPCA a report presenting the results of the testing and data collection as required under condition 1, and in addition, ASARCO shall identify preliminary sulfur dioxide control systems which ASARCO will more fully evaluate from January 1, 1983 to December 31, 1983; and
3. That ASARCO shall by December 31, 1983, notify PSAPCA of the sulfur dioxide control systems or new smelting processes on which necessary permits will be obtained as required in condition 4. These systems shall include at least one flue gas desulfurization (FGD) system and at least one alternative smelting technology capable of complying with Regulation I, Section 9.07(b) and 9.07(c). In addition, by December 31, 1983, ASARCO shall submit a schedule identifying dates for obtaining all necessary permits to begin construction of each selected alternative system or process, including Notices of Construction, and for completing actions as may be needed to comply with the State Environmental Policy Act and
4. That ASARCO shall by April 1, 1985, obtain all necessary permits on the systems selected under condition 3, including Notices of Construction as identified in the schedule submitted under condition 3. In addition, by April 1, 1985, ASARCO shall notify PSAPCA of the system or alternative smelting technology selected for compliance with Regulation I, Section 9.07(b) and 9.07(c); and
5. That ASARCO shall by July 1, 1985, let contracts to perform the construction of the system or alternative smelting process selected for compliance under condition 4; and
6. That if ASARCO selects a FGD system under condition 4, the ASARCO shall by January 1, 1987, fully comply with 9.07(b) and 9.07(c) of Regulation I, and if ASARCO selects an alternative smelting technology under condition 4, then ASARCO shall by July 1, 1987, fully comply with 9.07(b) and 9.07(c) of Regulation I; and
7. That ASARCO shall, beginning January 1, 1982, submit to PSAPCA quarterly progress reports on the status of the control plan as outlined in conditions 1 through 6; and

8. That ASARCO shall operate its sulfur dioxide control systems at optimum efficiency so as to recover the greatest possible amount of SO₂. ASARCO plant-wide SO₂ emissions shall not exceed the following tabular values, expressed as a percent of that sulfur emitted from the sulfur entering the smelting process, measured on a monthly basis, except as provided in "a":
- a) Until December 31, 1986, if ASARCO selects a FGD system under condition 4 or until June 30, 1987, if ASARCO selects alternative smelting technology under condition 4 - 55 percent (excluding periods of plant curtailment or start-ups, shutdowns, unavoidable or unforeseen failures, upsets or breakdowns, which shall be reported to PSAPCA);
 - b) No later than January 1, 1987, and thereafter, if ASARCO selects a FGD system under condition 4, or no later than July 1, 1987, and thereafter, if ASARCO selects alternative smelting technology under condition 4 - 10 percent;

For each of the above, the percentage of SO₂ emission control shall be calculated by ASARCO and status reports shall be submitted to the Agency within thirty (30) days following the calendar month of determination. The status report shall include the sulfur material balance curtailment report and the calculation of percent recovery to demonstrate compliance; and

9. That if the Board subsequently determines, after public hearing, that emissions from the Tacoma Plant are occurring which endanger public health or safety or cause significant damage to property, and if ASARCO does not promptly act to remove any such danger or remedy any such damage, the Board shall appropriately modify or rescind the portion of this Variance which allows such emissions; and
10. That ASARCO shall continue to operate and bear all costs of operating, maintaining and calibrating the existing sulfur dioxide (SO₂) recorder and the Hastings Mass Flow Meter, AFI-Series, and shall, within sixty (60) days following the end of each month, submit to the Agency validated monthly summaries of SO₂ emissions from the main stack, accurate to the nearest 0.1 ton comprising 30 minute averages expressed in tons of SO₂ per hour, and 24 hour summations expressed in tons of SO₂ per day; and
11. That ASARCO shall continue to maintain a meteorological curtailment program which is acceptable to the Agency and submit to the Agency within seven (7) days following the end of each week written reports of all curtailment actions during the week; and
12. That ASARCO shall by July 1, 1982, submit to PSAPCA a report analyzing the effectiveness of the meteorological curtailment program in preventing violations of the Agency's ambient standards and recommending improvements in the program. Specifically, the report shall examine each ambient SO₂ violation which has occurred from January 1, 1981, to January 1, 1982, determine the causes for each violation and discuss what changes in the meteorological curtailment program could prevent similar instances. ASARCO shall implement recommended changes by December 31, 1982; and

13. That ASARCO, Inc. shall continue to operate and bear all costs of operating, maintaining, and calibrating its nine (9) SO₂ wind direction, and wind speed monitoring stations plus its three (3) additional wind direction and speed direction and wind speed monitoring stations at the twelve (12) locations existing on March 18, 1980; and
14. That ASARCO shall continue to telemeter and bear all costs of telemetering all of ASARCO data on SO₂, wind direction and wind speed to the Agency's Seattle Office; and
15. That ASARCO shall continue to use United States Environmental Protection Agency (EPA) equivalent method SO₂ monitors; and
16. That ASARCO shall within sixty (60) days following the end of each month submit to the Agency validated, accurate summaries on 30 minute average readings from all nine (9) SO₂ monitoring stations and from all twelve (12) wind direction and wind speed monitoring stations, and ASARCO shall assume liability for civil penalties for incidents of noncompliance with section 9.07(a) of Regulation I, established by ASARCO monitoring data; and
17. That ASARCO shall use best practicable techniques to maintain its existing air pollution abatement and emission monitoring facilities for the control of emissions, minimize fugitive emissions of particulate and SO₂ as much as practicable by taking such control measures as applying dust suppressants, operating sweepers, and maintaining hooding; maintain air pollution control equipment now operating or activated during the Variance at design operating efficiency; and
18. That ASARCO shall continue to operate and bear all costs of operating and maintaining three (3) monitoring stations to determine ambient air concentration of arsenic containing particulates on a continuous basis; and
19. That ASARCO shall within fifteen (15) days after the end of each calendar quarter, submit written reports to the Agency on ambient arsenic monitoring outside the plant, any source tests conducted by or for ASARCO, and a monthly main stack total particulate report which includes total particulate, arsenic, lead and mercury emitted from the stack and mercury in the ores processed; and
20. That the Variance shall expire on December 31, 1982, but the conditions of the Variance shall remain in effect as applicable until such time as they are modified or rescinded by the PSAPCA Board of Directors; and
21. Compliance with this order and completion of all actions and conditions, by the dates specified herein, shall relieve ASARCO from penalties for violations of section 9.07(b) and 9.07(c) and/or other legal remedies as provided for in RCW 70.94; Provided that this does not prevent the Agency from issuing Notices of Violation.

Section 3: This Resolution shall become effective upon adoption by the Board of Directors of the Agency.

PASSED AND APPROVED at a regular meeting of the Board of Directors of the Puget Sound Air Pollution Control Agency held this 12th day of November, 1981.

PUGET SOUND AIR POLLUTION CONTROL AGENCY

By: Gene Lipp
Chairman

Attest:

Arthur J. Hamacher
Air Pollution Control Officer

Approved as to form:

K. H. McLeod
Agency Attorney